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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/367,081	01/24/2000	JEAN-FRANCOIS PENNEAU	15675.P291	3851

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EXAMINER

VO. HAI

ART UNIT PAPER NUMBER

1771

DATE MAILED: 11/26/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

### Office Action Summary

**Application No.**

09/367,081

**Applicant(s)**

PENNEAU ET AL.

**Examiner**

Hai Vo

**Art Unit**

1771

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 24 September 2003.  
2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.  
3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1,4-9,30,33-44,46,48,49 and 111-115 is/are pending in the application.  
4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.  
5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.  
6) ☒ Claim(s) 1,4-9,30,33-44,46,48,49 and 111-115 is/are rejected.  
7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.  
8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.  
10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).  
11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. §§ 119 and 120**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
a) ☐ All b) ☐ Some \* c) ☐ None of:  
1. ☐ Certified copies of the priority documents have been received.  
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.  
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).  
\* See the attached detailed Office action for a list of the certified copies not received.  
13) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application) since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.  
a) ☐ The translation of the foreign language provisional application has been received.  
14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121 since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892) 4) ☐ Interview Summary (PTO-413) Paper No(s). \_\_\_\_\_  
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948) 5) ☐ Notice of Informal Patent Application (PTO-152)  
3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) \_\_\_\_\_ 6) ☐ Other: \_\_\_\_\_

***Claim Objections***

1. Claims 9 and 43 are objected to under 37 CFR 1.75(c), as being of improper dependent form for failing to further limit the subject matter of a previous claim. Applicant is required to cancel the claim(s), or amend the claim(s) to place the claim(s) in proper dependent form, or rewrite the claim(s) in independent form. It appears that the range of the specific surface in claims 9 and 43 does not further limit the range recited in claims 1 and 41 respectively.

***Claim Rejections - 35 USC § 103***

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.
3. Claims 1, 4-6, 8, 9, 33, 35-38, 41-44, 46, 48, 49, 112, 113, and 115 are rejected under 35 U.S.C. 103(a) as being unpatentable over Stockel (US 4,309,494) in view of Doi et al (US 4,190,707) as evidenced by Ueno et al (US 5,171,774). Stockel teaches a porous film comprising a polyolefin resin of 10 to 60 volume percent, a filler of 10 to 60 volume percent (column 4, lines 30-32). Stockel discloses that the polyolefin resin is an ethylene-vinyl alcohol copolymer (column 3, lines 10-15, column 4, line 13). Stockel teaches the porous film being prepared by extrusion (column 2, line 68). Stockel teaches the porous film being self supportive (column 3, lines 25-30). Stockel teaches that the filler is carbon black (column 3, lines 54-55). Stockel does not specifically disclose the specific surface area of the filler. Ueno is

relied as evidence that teaches carbon black having a specific surface area of 1475 g/m<sup>2</sup> (table 1). Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to employ the carbon black filler having a specific area instantly claimed because such specific area of the carbon black is known in the art and Ueno provides necessary details to practice the invention of Stockel.

Stockel does not specifically disclose an open porous structure, a BET specific surface and the breaking strength of the film. It appears that the self-supportive film of Stockel is made of the same material with a similar composition (ethylene vinyl alcohol copolymer and carbon black filler) and produced by the same extrusion process as that of the present invention. Therefore, it is the examiner's position that the open porous structure and the BET specific surface, and the breaking strength would be inherently present. This is in line with *In re Spada*, 15 USPQ 2d 1655 (1990) which holds that products of identical chemical composition can not have mutually exclusive properties. Stockel does not specifically disclose the pore size of the film. Therefore, it is necessary and thus obvious for the skilled artisan to look to the prior art for the suitable pore size of the porous film. Doi teaches a battery separator made of a polyolefin and a filler having a similar composition. Doi discloses the film having the pore size of 0.05 to 0.5 micron within the claimed range to make it an extremely low electrical resistance, which is important to the invention of Stockel, thus suggesting the modification (abstract, column 11, lines 25-35). In an absence of unexpected results, it would have been obvious to one having ordinary

skill in the art at the time the invention was made to employ the film having a pore size within the range instantly claimed, motivated by the desire to provide the film having a very low electrical resistance, thereby enabling the battery separator to exert a high performance.

4. Claims 1, 4-9, 30, 33-38, 40-44, 46, 48, 49, 111-113, and 115 are rejected under 35 U.S.C. 103(a) as being unpatentable over McAllister et al (US 4,957,943) in view of Doi et al (US 4,190,707) as evidenced by Ueno et al (US 5,171,774). McAllister teaches a microporous film for use in battery separators having a plurality of interconnected passageways to provide a network of communicating pores (abstract). McAllister teaches the microporous film comprising a polymeric resin and a filler with 80 volume percent (column 8, lines 32-35). McAllister teaches that the polymeric resin is a blend of polyvinylidene fluoride, polyphenylene oxide and polyethylene (column 7, lines 1-10). McAllister teaches the microporous film being prepared by extrusion (column 10, lines 40-42). McAllister teaches the porous film being self-supportive (column 4, lines 20-30). McAllister teaches that the filler is carbon black (column 6, lines 65-67). McAllister does not specifically disclose the specific surface area of the carbon black. Ueno is relied as evidence that teaches carbon black having a specific surface area of 1475 g/m<sup>2</sup> (table 1). Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to employ the carbon filler having a specific area instantly claimed because such specific area of the carbon is known in the art and Ueno provides necessary details to practice the invention of McAllister.

- McAllister does not specifically disclose a BET specific surface and the breaking strength of the film. It appears that the self-supportive film of McAllister is made of the same material with a similar composition (polyolefin, filler) and produced by the same extrusion process as that of the present invention. Therefore, it is the examiner's position that the BET specific surface and the breaking strength would be inherently present. This is in line with *In re Spada*. McAllister does not specifically disclose the pore size of the film. Therefore, it is necessary and thus obvious for the skilled artisan to look to the prior art for the suitable pore size of the porous film. Doi teaches a battery separator made of a polyolefin and a filler with the composition within the claimed range. Doi discloses the film having the pore size of 0.05 to 0.5 micron within the claimed range to make it an extremely low electrical resistance (abstract, column 11, lines 25-35), which is important to the invention of McAllister, thus suggesting the modification. In an absence of unexpected results, it would have been obvious to one having ordinary skill in the art at the time the invention was made to employ the film having a pore size within the range instantly claimed, motivated by the desire to provide the film having a very low electrical resistance, thereby enabling the battery separator to exert a high performance.
5. Claims 39 and 114 are rejected under 35 U.S.C. 103(a) as being unpatentable over McAllister et al (US 4,957,943) in view of Doi et al (US 4,190,707) as evidenced by Ueno et al (US 5,171,774) as applied to claims 6 and 38, further in view of Shinomura (US 4,100,238). McAllister does not specifically disclose the molecular weight of the polyphenylene oxide. Therefore, it is necessary and thus obvious for

the skilled artisan to look to the prior art for the suitable molecular weight of the polyphenylene oxide. Shinomura teaches a battery separator comprising a polyphenylene oxide having the molecular weight in the range of 100,000 to 10,000,000 within the claimed range (column 3, lines 35-37). Likewise, the range of the molecular weight of polyether, especially polyphenylene oxide recited in the claim is known in the art. In an absence of unexpected results, it would have been obvious to one having ordinary skill in the art at the time the invention was made to employ the film having a pore size within the range instantly claimed because such is intended use of the material and Shinomura provides necessary details to practice the invention of McAllister.

### ***Response to Arguments***

6. The art rejections in the Office Action mailed on 04/10/2003 have been overcome by the present amendment and response.
7. Applicant's arguments with respect to claims 1, 4, 5-9, 30, 33-44, 46, 48, 49, and 111-115 have been considered but are moot in view of the new ground(s) of rejection.

### ***Conclusion***


8. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

9. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Hai Vo whose telephone number is (703) 605-4426. The examiner can normally be reached on M,T,Th, F, 8:30-6:00 and on alternating Wednesdays.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Terrel Morris can be reached on (703) 308-2414. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9310.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0661.

  
TERREL MORRIS  
SUPERVISORY PATENT EXAMINER  
TECHNOLOGY CENTER 1700